

WHAT IS CLAIMED IS:

1 *July 7* 1. A mail processing apparatus comprising:  
2 a paper feeding mechanism that is adapted to feed sheets of paper;  
3 a collection bin that is adapted to receive the sheets of paper from the  
4 paper feeding mechanism in a stack;  
5 a retrieval mechanism that is configured to move a bottom one of said  
6 sheets of paper from the stack; and  
7 a deionizer that is adapted to reduce static electricity in the vicinity of  
8 the stack to facilitate removal by the retrieval mechanism of only one of said sheets of paper  
9 at a time.

1 2. The mail processing apparatus as in claim 1 wherein said deionizer  
2 comprises a deionizing static bar.

1 3. The mail processing apparatus as in claim 1 wherein said deionizer is  
2 positioned so that said sheets fed by said paper feeding mechanism pass over said deionizer  
3 as said sheets are received by said collection bin.

1 4. The mail processing apparatus as in claim 1 wherein said retrieval  
2 mechanism comprises a roller.

1 5. The mail processing apparatus as in claim 1 wherein said collection  
2 bin further comprises at least one foot, said foot for facilitating the removal of only said one  
3 sheet by stripping off adjacent sheets from said one sheet.

1 6. The mail processing apparatus as in claim 1 further comprising a  
2 printer that is adapted to print alpha-numeric characters on said sheets prior to said sheets  
3 being fed by said paper feeding mechanism.

1 7. The mail processing apparatus as in claim 1 further comprising a card  
2 attachment mechanism for attaching a card to said one sheet.

1 8. The mail processing apparatus as in claim 1 further comprising a sheet  
2 folding mechanism for folding said one sheet.

1 9. A method of processing mail, said method comprising:

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FOOTNOTES

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providing a plurality of sheets of paper;  
feeding said sheets of paper sequentially into a collection bin to form a  
stack, said collection bin comprising a deionizer that is adapted to reduce static electricity in  
the vicinity of the stack; and  
retrieving a bottom one of said sheets of paper from the stack with a  
retrieval mechanism.

10. The method as in claim 9 wherein said deionizer comprises a static bar,  
and wherein said feeding comprises sequentially passing said sheets over said static bar.

11. A mail processing apparatus comprising:  
a track over which paper sheets are adapted to pass in sequence;  
a moving mechanism that is adapted to move the sheets along the  
track; and  
an inserting mechanism that is adapted to add an insert to one of the  
sheets while on the track, wherein the inserting mechanism includes;  
a grasping mechanism that is adapted to grasp and move the  
insert onto the sheet; and  
a nozzle positioned above the track that is adapted to direct a  
gas stream onto the insert to hold the insert to the sheet, thereby facilitating the passage of the  
grasping mechanism over both the sheet and the insert when grasping a subsequent insert for  
a subsequent sheet.

12. The mail processing apparatus as in claim 11 wherein said inserting  
mechanism comprises a bin to hold a stack of inserts, and at least one vacuum finger to pull a  
bottom insert from said stack where it is grasped by said grasping mechanism.

13. The mail processing apparatus as in claim 11 wherein said nozzle is  
coupled to said grasping mechanism.

14. The mail processing apparatus as in claim 11 wherein said nozzle  
comprises an elongate slit for directing said gas stream.

15. The mail processing apparatus as in claim 11 wherein said moving  
mechanism comprises a pair of fingers that move along said track.

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1           16.     The mail processing apparatus as in claim 11 further comprising a  
2 sensor that is adapted to detect if the insert has been grasped by said grasping mechanism.

1           17.     The mail processing apparatus as in claim 16 wherein said sensor  
2 comprises a pressure sensor.

1           18.     The mail processing apparatus as in claim 16 wherein said sensor  
2 comprises an optical sensor.

1           19.     The mail processing apparatus as in claim 16 further comprising an  
2 indicator that is adapted to indicate if said grasping mechanism fails to grasp said insert.

1           20.     The mail processing apparatus as in claim 19 wherein said indicator  
2 further comprises an interrupt circuit coupled to and adapted to stop operation of said moving  
3 mechanism and said inserting mechanism, if said grasping mechanism fails to grasp said  
4 insert.

1           21.     The mail processing apparatus as in claim 11 further comprising a  
2 sensor that is adapted to detect if more than one insert has been grasped by said grasping  
3 mechanism.

1           22.     The mail processing apparatus as in claim 21 further comprising an  
2 indicator that is adapted to operate if said grasping mechanism grasps more than one said  
3 insert.

1           23.     The mail processing apparatus as in claim 22 wherein said indicator  
2 further comprises an interrupt circuit coupled to and adapted to stop operation of said moving  
3 mechanism and said inserting mechanism, if said grasping mechanism grasps more than one  
4 said insert.

1           24.     A method of processing mail, said method comprising:  
2 passing first and second paper sheets along a track; and  
3 adding an insert to said first sheet, said adding comprising;  
4 grasping said insert with a grasping mechanism;  
5 moving said insert onto said first sheet; and

6 holding said insert to said first sheet, said holding comprising  
7 directing a gas stream onto said insert, and wherein said holding is adapted to facilitate the  
8 passage of the grasping mechanism over both the first sheet and the insert when grasping a  
9 subsequent insert for the second sheet.

1 25. The method as in claim 24 further comprising sensing whether said  
2 grasping mechanism has grasped only one insert using a sensor.

1 26. The method as in claim 24 further comprising ceasing said passing and  
2 adding if said sensor indicates that said grasping mechanism failed to grasp said insert.

1 27. The method as in 24 further comprising ceasing said passing and  
2 adding if said sensor indicates that said grasping mechanism grasped more than one said  
3 insert.

1 28. A mail processing apparatus comprising;  
2 a track;  
3 an envelope feeder that is adapted to feed an envelope onto the track;  
4 an inserting mechanism that is adapted to place inserts into the  
5 envelope; and  
6 a nozzle system that is adapted to direct a gas into the envelope to hold  
7 the envelope open for the inserts, wherein the nozzle system comprises;  
8 a central nozzle that is adapted to direct said gas into a central  
9 region of the envelope; and  
10 a side nozzle that is adapted to direct said gas near an edge of  
11 the envelope.

1 29. The mail processing apparatus as in claim 28 further comprising a gas  
2 adjust nozzle to control a flow rate of said gas through said side nozzle.

1 ~~30. The mail processing apparatus as in claim 28 further comprising a~~  
2 ~~fixture to hold said side nozzle to said central nozzle.~~

1 31. A method of processing mail, said method comprising;  
2 providing an insert to be placed into an envelope;

3 feeding the envelope onto a track, said envelope having an opening;  
4 and  
5 directing a gas into the opening to hold open the envelope to facilitate  
6 receipt of the insert by the envelope, said directing comprising;  
7 directing the gas with a central nozzle into a central region of  
8 the envelope opening; and  
9 directing the gas with a side nozzle near an edge of the  
10 envelope opening.

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